

## Swissnoso update recommendations on the use of FFP2 respirators for healthcare workers with direct contact to COVID-19 patients in acute care hospitals, June 2021

(Replaces Swissnoso position on the use of FFP2 respirators for HCWs in Acute Care Hospitals from 1 Mar 2021<sup>1</sup>)

### Purpose of the document and approach taken

To ensure adequate protection of healthcare workers (HCWs) and minimize any potential residual risk of SARS-CoV-2 acquisition when in close contact with Covid-19 cases. Recent scientific articles were reviewed to update recommendations on precaution measures for the management of COVID-19 cases, in particular the use of filtering face piece class 2 (FFP2)<sup>2</sup> respirators for HCWs in acute care.

### Background and recent findings from scientific literature

Respiratory particles are the most important mode of transmission of SARS-CoV-2. Previous reports showed surgical masks to be comparable to FFP2 respirators to prevent transmission of SARS-CoV-2 and other respiratory viruses in most instances. [Wiersinga, 2020; Cheng, 2021; Conly, 2021; Chu, 2021] The World Health Organization recommends the use of surgical masks for situations not involving aerosol generating procedures (AGPs) in the direct care of suspected or confirmed COVID-19 cases [WHO, 2020].

Meanwhile there has been growing evidence to suggest that there are no clear boundaries between droplets (larger) or aerosol (smaller) particles that may be exhaled by individuals, which has therefore repeatedly given rise to questions about the adequate protection of HCW in this pandemic. [Bourouiba, 2020; Bazant, 2021; Vernez, 2021] Experimental and modelling studies suggested the risk of aerosol generation not only to arise from AGPs but also from respiratory activities other than quiet breathing. [Wilson, 2021; Bazant, 2021] Further work recommended considering the risk of close, physical exposure to individuals with suspected or known COVID-19 for prolonged time or in poorly ventilated environment and the potential benefit of advanced masks and other protective equipment if properly worn. [Cheng, 2021; Hamilton, 2021]

At the same time, more than one year into the COVID-19 pandemic there continues to be insufficient direct clinical evidence to determine if and to what extent FFP2 respirators provide additional protection from SARS-CoV-2 acquisition in HCWs compared to surgical masks (Type II/IIR). The only large clinical trial addressing this question is still ongoing [ClinicalTrials.gov; Identifier: NCT04296643]. Preliminary data of a recent cohort study on HCWs across nine hospitals in Switzerland suggested additional protection against SARS-CoV-2 when HCWs with more frequent exposure to COVID-19 patients predominantly used respirators (rather than surgical masks) outside AGPs. [Haller, 2021] However, the study results need to be interpreted with caution due to the inevitable limitations of an observational study that is based on self-reported mask use.

Importantly, the study by Haller et al. highlights that exposure to positive household contacts remains by far the strongest association with laboratory confirmed SARS-CoV-2 infection or seroconversion. This was also shown in other reports, [Martischang, 2021; Kahlert, 2021; Steensels, 2020] some of which found increased risk of transmission among HCWs at work and during breaks, supporting transmission between HCWs rather than from interacting with patients. This highlights the importance of HCWs to strictly adhere to precaution measures both in the community and at the workplace.

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<sup>1</sup> 01.03.2021: Position der Swissnoso zum Einsatz von FFP2 Masken für Gesundheitspersonal mit direktem Patientenkontakt in Akutspitälern, im Kontext der COVID-19 Pandemie und der Ausbreitung neuerer SARS-CoV-2 Virusvarianten Deutsch  
[https://www.swissnoso.ch/fileadmin/swissnoso/Dokumente/5\\_Forschung\\_und\\_Entwicklung/6\\_Aktuelle\\_Ereignisse/210302\\_Swissnoso\\_Position\\_FFP-2\\_DE\\_v0.1.pdf](https://www.swissnoso.ch/fileadmin/swissnoso/Dokumente/5_Forschung_und_Entwicklung/6_Aktuelle_Ereignisse/210302_Swissnoso_Position_FFP-2_DE_v0.1.pdf)

<sup>2</sup> The document considers FFP2 or equivalent respirators, such as N95 or KN95 types.

## Evaluation and conclusion

It remains unclear when and, if at all, stronger evidence from high-quality studies will become available, to determine whether FFP2 respirators (vs. type II/IIR surgical masks) convey any additional protection to HCWs managing COVID-19 patients in specific situations outside AGPs. As long as an added benefit of FFP2 respirators is neither confirmed nor excluded, their use may be considered for HCWs in defined situations in addition to AGPs, to minimize any potential residual risk of SARS-CoV-2 acquisition. However, universal FFP2 respirator use in acute care is not recommended.

In this context it is of utmost importance to carefully weigh benefits (potential additional protection when fitting tightly and used correctly) and risks (less comfort, false sense of security when used incorrectly, etc.) for using FFP2 respirators as opposed to surgical masks, [Conly, 2021] with instructions in place for safe use and adequate fit. [Regli, 2021]. Further, SARS-CoV-2-vaccination, strict adherence to hand hygiene and adequate PPE use remain important precaution measures to effectively prevent transmission of SARS-CoV-2/other pathogens. **As such, SARS-CoV-2 vaccination, the prime prevention measure on the population level, should be promoted in all possible avenues.**

Following recommendations are for acute care hospitals. Local employers can choose whether and how to adapt their approach according to their local analysis of benefits and risks (considering local epidemiology, vaccination status and/or individual risk of immunocompromised HCWs).

## Key recommendations

**1. The use of FFP2 respirators is recommended for HCWs performing aerosol-generating procedures (AGPs) in confirmed or suspected COVID-19 cases<sup>3</sup>. In addition, the use of FFP2 respirators is recommended for HCWs<sup>4</sup> in contact with confirmed or suspected COVID-19 cases in the following situations:**

**a. The patient is unable to wear a surgical mask in presence of the HCW**

**AND (one or more situations among the following examples)**

**b. The patient presents with enhanced respiratory activities other than quiet breathing<sup>5</sup>**

**c. Prolonged physical contact between patient and HCW<sup>6</sup>**

**d. Room ventilation is poor<sup>7</sup>**

**2. Regarding the use of FFP2 respirators, ensure that:**

- Different types are available matching different face shapes
- Fit testing is available or at least training for fit check is offered
- They are tolerated and correctly handled by the HCW

**3. HCW must strictly adhere to general precaution measures, including**

- Excellent hand hygiene
- Wearing goggles when in close (<1.5m) contact and other PPE as indicated/as per local guidelines
- Responsible behavior during interaction with other HCWs and outside work
- HCW help to ensure regular ventilation of patient rooms, offices and other enclosed rooms used by several people.
- Vaccination is strongly recommended to reduce overall nosocomial and community transmission

<sup>3</sup> Extended use of FFP2 masks for AGP's in patients irrespective of COVID-19 status may be considered in the setting of high COVID-19 prevalence (which increases the risk of undiagnosed COVID-19 cases in hospital patients in general) [Klompas, 2021]

<sup>4</sup> In the framework of the protection concept, fully immunized HCWs may not necessarily need to wear the FFP2 mask in these situations. In this case, the occupational physician (*Personalmedizin*) has to determine the *immunization status* of an employee and decides about the *aptitude* to work within manageable settings where protective measures such as wearing a mask can be dispensed. Legally, employers are not allowed to actively inquire about the vaccinated or recovered status of employees

<sup>5</sup> E.g. heavy breathing, talking, shouting, exercise, forced expiratory maneuvers and coughing

<sup>6</sup> E.g. activities close to the patients mouth like dental care, assisting in oral intake

<sup>7</sup> E.g. if not possible to regularly opening window (minimum 4-6 times per day for 15-20 minutes); less than 2-3 air exchanges per hour [Vernez, 2021] in air conditioned rooms; or CO<sub>2</sub>-concentration > 1000 ppm (proxy for poor ventilation if normal room occupancy [Science Taskforce, 2021])

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